

AMENDMENTS TO THE CLAIMS

1. (Original) A process for oligomerizing an alkene stream over a solid catalyst comprising sulfur and nickel, wherein the oligomerization is carried out in two or more successive catalyst zones and the molar ratio of sulfur to nickel in the first catalyst zone is less than 0.5 and that in the last catalyst zone is 0.5 or more and, in the case of further catalyst zones between the first and last catalyst zones, the molar ratio of sulfur to nickel in each catalyst zone is not less than that in the preceding catalyst zone, based on the main flow direction of the feed stream.
2. (Original) The process according to claim 1, wherein the molar ratio of sulfur to nickel in the first catalyst zone is less than 0.4 and that in the last catalyst zone is more than 0.6.
3. (Currently amended) The process according to claim 1, wherein a catalyst obtainable obtained by a process in which aluminum oxide is treated with a nickel compound and a sulfur compound, either simultaneously or firstly with the nickel compound and then with the sulfur compound, and the catalyst obtained in this way is subsequently dried and calcined and a molar ratio of sulfur to nickel of from 0.25:1 to 0.38:1 is in this way set in the finished catalyst is used.
4. (Currently amended) The process according to claim 1, wherein a catalyst which consists essentially of nickel oxide, silicon dioxide, titanium dioxide and/or zirconium dioxide and, if appropriate, optionally aluminum oxide and has a content, after subtraction of the loss on ignition after heating at 900°C, of nickel oxide, calculated as NiO, of from 10 to

70% by weight, from 5 to 30% by weight of titanium dioxide and/or zirconium dioxide, from 0 to 20% by weight of aluminum oxide, from 20 to 40% by weight of silicon dioxide and from 0.01 to 1% by weight of an alkali metal oxide, with the proviso that the proportions of the individual components add up to 100%, and is obtainable obtained by precipitation of an aluminum-free nickel salt solution or a nickel salt solution containing a dissolved aluminum salt at a pH of from 5 to 9 by addition of this nickel salt solution to an alkali metal water glass solution containing solid titanium dioxide and/or zirconium dioxide, drying and heating of the resulting precipitate at from 350 to 650°C is used.

5. (Previously presented) The process according to claim 1, wherein the alkene stream used is a mixture of alkenes and alkanes having from 2 to 6 carbon atoms.
6. (Previously presented) The process according to claim 1, wherein the alkene stream used is a mixture of butenes and butanes.
7. (Previously presented) The process according to claim 1, wherein the alkenes of the alkene stream are reacted to an extent of from 65 to 99% in the first catalyst zone and the alkenes remaining unreacted after this first catalyst zone are reacted to an extent of from 10 to 99% in the remaining catalyst zones.
8. (Previously presented) The process according to claim 2, wherein a catalyst obtainable by a process in which aluminum oxide is treated with a nickel compound and a sulfur compound, either simultaneously or firstly with the nickel compound and then with the

sulfur compound, and the catalyst obtained in this way is subsequently dried and calcined and a molar ratio of sulfur to nickel of from 0.25:1 to 0.38:1 is in this way set in the finished catalyst is used.

9. (Currently amended) The process according to claim 2, wherein a catalyst which consists essentially of nickel oxide, silicon dioxide, titanium dioxide and/or zirconium dioxide and, if appropriate, optionally aluminum oxide and has a content, after subtraction of the loss on ignition after heating at 900°C, of nickel oxide, calculated as NiO, of from 10 to 70% by weight, from 5 to 30% by weight of titanium dioxide and/or zirconium dioxide, from 0 to 20% by weight of aluminum oxide, from 20 to 40% by weight of silicon dioxide and from 0.01 to 1% by weight of an alkali metal oxide, with the proviso that the proportions of the individual components add up to 100%, and is obtainable obtained by precipitation of an aluminum-free nickel salt solution or a nickel salt solution containing a dissolved aluminum salt at a pH of from 5 to 9 by addition of this nickel salt solution to an alkali metal water glass solution containing solid titanium dioxide and/or zirconium dioxide, drying and heating of the resulting precipitate at from 350 to 650°C is used.
10. (Previously presented) The process according to claim 9, wherein the alkene stream used is a mixture of alkenes and alkanes having from 2 to 6 carbon atoms.
11. (Previously presented) The process according to claim 10, wherein the alkene stream used is a mixture of butenes and butanes.

12. (Previously presented) The process according to claim 11, wherein the alkenes of the alkene stream are reacted to an extent of from 65 to 99% in the first catalyst zone and the alkenes remaining unreacted after this first catalyst zone are reacted to an extent of from 10 to 99% in the remaining catalyst zones.
13. (Previously presented) The process according to claim 1, wherein the process is carried out over a fixed catalyst bed in which the molar ratio of sulfur to nickel in the first catalyst zone is less than 0.4 and that in the last catalyst zone is more than 0.8.
14. (Previously presented) The process according to claim 2, wherein the process is carried out over a fixed catalyst bed in which the molar ratio of sulfur to nickel in the first catalyst zone is less than 0.4 and that in the last catalyst zone is more than 1.
15. (Previously presented) The process according to claim 1, wherein the alkenes of the alkene stream are reacted to an extent of from 80 to 99% in the first catalyst zone and the alkenes remaining unreacted after this first catalyst zone are reacted to an extent of from 10 to 99% in the remaining catalyst zones.
16. (Previously presented) The process according to claim 1, wherein the alkenes of the alkene stream are reacted to an extent of from 90 to 99% in the first catalyst zone and the alkenes remaining unreacted after this first catalyst zone are reacted to an extent of from 50 to 99% in the remaining catalyst zones.